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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,359	12/30/2000	Gary Cao	042390P9473	8440

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EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/752,359

Applicant(s)

CAO ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/01/07.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 12/2/07
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 12/01/2006 has been entered.

Therefore claim 1 as amended by the amendment and claims 2-11 as previously recited are currently pending.

Claims 12-16 were previously cancelled.

Claim Rejections - 35 USC Section 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satya et al. (U.S. Patent No. 6,528,818, herein after Satya) and Browning et al. (U.S.

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Patent No. 5,580,829 herein after Browning), both previously applied and further in view of Stearns et al. (U.S. Patent No. 5,715,385, herein after Stearns) presently newly applied.

With respect to claim 1 Satya describes a structure comprising: a first set of features disposed in a scribe line, (Satya abstract line 2-4, Satya col. 37 lines 28 to 30) said first set of features being a subset of product features, (Satya figure 27, etc.) and, a second set of features disposed in said scribe line and merged directly into said first set of features, (Satya abstract lines 6-8, Satya col. 37 lines 28 to 30), said second set of features differing from said first set of features in pattern factor (Satya figure 27, etc and Satya abstract lines 6-8, Satya col. 37 lines 28 to 30, similar to applicants' " pattern factor" defined in Applicants' specification as page 9 lines 1-2 as "Pattern factor refers to the percentage of total area of features and spaces therefore pattern factor for Satya would include total area of features and spaces of 245- first set and those of second set 255 and the total percentage thereof, see also Applicants' specification page 8 lines 19-end, etc.). that is occupied by the interior of the features. Polarity refers to placement of the Satya does not specifically mention or describe the second set of features spread across a smaller space than the first set.

However Browning in figure 4 and col. 4 lines 40-52 describes the second set of features spread across a smaller space than the first set (i.e. first set is larger oversize by about 10% to reduce the amount of extra metallic material deposited on dice such that bowing is eliminated and human error is virtually eliminated by creating the second mask key. (Browning co1.2 lines 35-40). It is noted that Applicants' amending

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the claim 1 form " said second set of features occupying a smaller area than said first set of features " to said second set of features (occupying) spread across a smaller space (area) than said first set of features " is not sufficient to distinguish over the applied art of record for reasons set forth above and explained to Attorney Chen in two interviews .

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Browning's second set occupying a smaller area than said first set, in Satya's device to reduce the amount of extra metallic material deposited on dice such that bowing is eliminated and human error is virtually eliminated by creating the second mask key. (Browning col.2 lines 35-40).

The remaining limitations of claim 1 are :

second set of features created by geometric transformation of said product features, including rotating, space scaling and linewidth scaling.

Satya and Browing do not specifically describe the presently newly added limitation second set of features created by geometric transformation of said product features, including rotating, space scaling and linewidth scaling.

However Stearns in col. 2 line 30 to col. 6 line 13 describes second set of features created by geometric transformation of said product features, including rotating, space scaling and linewidth scaling to perform the method at higher speeds reliability and an easier simpler less expensive method.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Stearns' second set of features created by geometric

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transformation of said product features, including rotating, space scaling and line width scaling in Satya and Browning's devices, the motivation for the afore mentioned combination is to perform the method at higher speeds reliability and an easier simpler less expensive method (Stearns' col. 2 lines 35-38 and lines 45-47).

With respect to claim 2 Satya describes the structure of claim 1 wherein critical dimension (CD) is measured on said first set of features. (Stay figure 2, col. 8 lines 1 5-22).

With respect to claim 3 Satya describes the structure of claim 1 wherein said first set of features and said second set of features differ in spaces between features. (Staya figure 4D # 216 and 214)

With respect to claim 4 describes the structure of claim 1 wherein said first set of features and said second set of features differ in line widths of features. (Staya figure 4 D).

With respect to claim 5 describes the structure of claim 1 wherein said first set of features and said second set of features have the same pitch for features. (Satya figure 4C).

B. Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satya et al. (U.S. Patent No. 6,528,818, herein after Satya) ,Browning et al. (U.S. Patent No. 5,580,829 herein after Browning) and in view of Stearns et al. (U.S. Patent No. 5,715,385, herein after Stearns) as applied to claims 1-5 above and further in view of Gallarada et alo (U.S. Patent No. 6,539,106 herein after Gallarada).

With respect to claim 6 Satya and Browning describe the structure of claim 1.

However Staya, Browning and Stearns do not describe wherein said first set of features comprises a first array of holes.

However, Gallarada in figure 4, col. 6 lines 36 to 48 describes wherein said first set of features comprises a first array of holes to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images.

Therefore, it would have been obvious to one of ordinary skill in the art at the time for the invention to include Gallarada's teachings Of first set of features comprises a first array of holes, in Satya' and Browning's first/second set of features. The motivation to make the above substitution is to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images. (Gallarada col. 6 lines 40-47).

With respect to claim 7 describes the structure of claim 6 wherein said first array of holes comprises a 5 by-5 square array of holes. (Gallarda figure 5).

With respect to claim 8 describes the structure of claim 6 wherein said second set of features comprises a second array of holes. (Gallarda figure 5).

With respect to claim 9 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in size of array. (Gallarda figure 5 # 536 compared with other structures 526-534).

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With respect to claim 10 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in space between holes. (Gallarda figures 18 A and E)

With respect to claim 11 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in line widths of holes.. (Staya figure 4D).

Response to Arguments

Applicant's arguments filed on November 27, 2006 have been fully considered but they are not persuasive for the following reasons :

Applicants' amending the claim 1 form " said second set of features occupying a smaller area than said first set of features " to said second set of features (occupying) spread across a smaller space (area) than said first set of features " is not sufficient to distinguish over the applied art of record for reasons set forth above and explained to Attorney Chen in two interviews .

It is further noted that Applicants' arguments are not commensurate in scope with the presently recited claims as was explained to the Applicants' and their representative (George Chen) .

Briefly , if Applicants' want to distinguish elements 245 and 255 of their fig. 3 in their claims , they must at the minimum recite How the second set (255) are a subset of the first set of features (245) or if separate by Buffer region how is the second set of features different (smaller) than the first , so as to distinguish over the applied prior art that describes the second set of features spread across a smaller space than the first

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set (i.e. first set is larger oversize by about 10% to reduce the amount of extra metallic material deposited on dice such that bowing is eliminated and human error is virtually eliminated by creating the second mask key. (Browning co1.2 lines 35-40).

It is noted the claim recitation must not be at odds with Applicants' specification including "The test structure 250 includes a first set 245 of features and a second set 255 of features. The first set 245 of features is a subset of the product features to be monitored. The second set 255 of features is similar to the first set 245 of features, but differs in one or more ways. The second set 255 of features may be merged directly into the first set 245 of features or may be separated by a buffer region 265. Pattern recognition may be performed on part or all of the first set 245 of features and part or all of the second set 255 of features. Alternatively, pattern recognition may be done only on part or all of the second set 255 of features" .

Therefore all of Applicants' arguments are not persuasive.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.30-5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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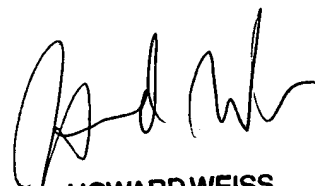
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Steven H. Rao

Patent Examiner

Jan 25, 2007



HOWARD WEISS
PRIMARY EXAMINER